

IN THE CLAIMS

The following is a complete listing of the claims, and replaces all earlier versions and listings.

1-42. (Canceled)

43. (Currently Amended) A method of compressing data, wherein the data comprises a plurality of transform coefficients, and each transform coefficient is expressible in a format including a plurality of bit symbols, the format comprising a number of leading zero bit symbols and remaining bit symbols, the method comprising the steps of:

(a) entropy encoding a number representative of the number of leading zero bit symbols, ~~not previously entropy coded~~, of a current transform coefficient based on a context of a number of transform coefficients or part thereof surrounding the current transform coefficient, said context being based on the number of non-zero transform coefficients or part thereof surrounding the current transform coefficient;

(b) coding the remaining bit symbols of the current transform coefficient; and

~~(b)~~ (c) processing another transform coefficient, not previously entropy coded, in accordance with ~~step (a)~~ steps (a) and (b).

44. (Canceled)

45. (Previously presented) A method as claimed in Claim 43, further comprising the step of quantizing the transform coefficients.

46. (Previously presented) A method as claimed in claim 43, wherein the representative number equals the number of leading zero bit symbols.

47. (Previously presented) A method as claimed in claim 43, wherein said context is determined from an arrangement of surrounding transform coefficients.

48. (Previously presented) A method as claimed in claim 47, wherein the surrounding transform coefficients are previously encoded transform coefficients.

49. (Canceled)

50. (Currently Amended) A method as claimed in claim 43, ~~further comprising the step of coding the remaining bit symbols of the current transform coefficient~~ wherein said step of coding the remaining bit symbols includes copying the remaining bit symbols.

51. (Previously presented) A method of compressing data, wherein the data comprises a plurality of transform coefficients, and each transform coefficient is expressible in a format comprising a plurality of bit symbols, the method comprising the steps of:

(a) entropy encoding one of the bit symbols, not previously entropy coded, of a current transform coefficient based on a context of a number of surrounding bit symbols and on whether or not the most significant bit symbol of the current coefficient has been previously entropy coded, said context being based on the number of non-zero transform coefficients surrounding the current transform coefficient;

(b) repeating step (a) a predetermined number of times for the current transform coefficient; and

(c) processing another transform coefficient, not previously entropy coded, in accordance with steps (a) and (b).

52. (Canceled)

53. (Previously presented) A method as claimed in claim 51, further comprising the step of quantizing the transform coefficients.

54. (Canceled)

55. (Previously presented) A method as claimed in claim 51, wherein said context of surrounding bit symbols includes information as to whether or not a most significant bit of at least one transform coefficient spatially adjacent, to the current transform coefficient, has been encoded.

56. (Previously presented) A method as claimed in claim 51, wherein the transform coefficients are represented in a bit-plane representation and the surrounding bit symbols are bit symbols in a current bit-plane.

57. (Previously presented) A method as claimed in claim 43, wherein said entropy encoding is performed by an arithmetic coder.

58. (Previously presented) A method as claimed 43, a further comprising the step of Discrete Wavelet Transforming data to produce the plurality of transform coefficients.

59. (Currently Amended) A method of decompressing data, wherein the data once decompressed comprises a plurality of transform coefficients, and each transform coefficient is expressible in a format including a plurality of bit symbols, the format comprising a number of leading zero bit symbols and remaining bit symbols, the method comprising the steps of:

(a) entropy decoding an encoded number representative of the number of leading zero bit symbols of a current transform coefficient based on a context of a number of transform coefficients or part thereof surrounding the current transform coefficient, said context being based on the number of non-zero transform coefficients or part thereof surrounding the current transform coefficient;

(b) decoding the remaining bit symbols of the current transform coefficient; and

(b) (c) processing another transform coefficient in accordance with ~~step (a)~~ steps (a) and (b).

60. (Canceled)

61. (Previously presented) A method as claimed in claim 59, further comprising the step of inverse quantizing the transform coefficients.

62. (Previously presented) A method as claimed in claim 59, wherein the representative number equals the number of leading zero bit symbols.

63. (Previously presented) A method as claimed in claim 59, wherein said context is determined from an arrangement of surrounding transform coefficients.

64. (Previously presented) A method as claimed in claim 63, wherein the surrounding transform coefficients are previously decoded transform coefficients.

65. (Canceled)

66. (Currently Amended) A method as claimed in claim 59, ~~further comprising the step of decoding the encoded remaining bit symbols of the current transform coefficient~~ wherein said step of decoding the remaining bit symbols includes copying the remaining bit symbols.

67. (Previously presented) A method of decompressing data, wherein the data once decompressed comprises a plurality of transform coefficients, and each transform coefficient is expressible in a format comprising a plurality of bit symbols, the method comprising the steps of:

- (a) entropy decoding an encoded bit symbol of a current transform coefficient based on a context of a number of surrounding bit symbols and on whether or not the most significant bit symbol of the current coefficient has been previously entropy decoded, said context being based on the number of non-zero transform coefficients surrounding the current transform coefficient;
- (b) repeating step (a) a predetermined number of times for the current transform; and
- (c) generating another transform coefficient in accordance with steps (a) and (b).

68. (Canceled)

69. (Previously presented) A method as claimed in claim 67, further comprising the step of inverse quantizing the transform coefficients.

70. (Canceled)

71. (Previously presented) A method as claimed in claim 67, wherein said context of surrounding bit symbols includes information as to whether or not a most

significant bit of at least one transform coefficient spatially adjacent, to the current transform coefficient, is encoded or decoded.

72. (Previously presented) A method as claimed in claim 67, wherein the transform coefficients are represented in a bit-plane representation and the surrounding bit symbols are bit symbols in a current bit-plane.

73. (Previously presented) A method as claimed in claim 59, wherein said entropy decoding is performed by an arithmetic coder.

74. (Previously presented) A method as claimed in claim 59, wherein further comprising the step of inverse Discrete Wavelet Transforming the transform coefficients.

75. (Currently Amended) An apparatus for compressing data, wherein the data comprises a plurality of transform coefficients and each transform coefficient is expressible in a format including a plurality of bit symbols, the format comprising a number of leading zero bit symbols and remaining bit symbols, the apparatus including:

~~entropy~~ first encoder means for entropy encoding a number representative of the number of leading zero bit symbols, ~~not previously entropy coded~~, of a current transform coefficient based on a context of a number of transform coefficients or part thereof surrounding the current transform coefficient, said context being based on the

number of non-zero transform coefficients or part thereof surrounding the current transform coefficient; and

second encoder means for encoding the remaining bit symbols of the current transform coefficient; and

processor means for processing another transform coefficient, not previously ~~entropy~~ coded, in accordance with the operations of the ~~entropy~~ first and second encoder means.

76. (Canceled)

77. (Previously presented) An apparatus according to claim 75, wherein the apparatus further includes quantization means for quantizing the transform coefficients.

78. (Previously presented) An apparatus as claimed in claim 75, wherein the representative number equals the number of leading zero bit symbols.

79. (Previously presented) An apparatus as claimed in claim 75, wherein said context is determined from an arrangement of surrounding transform coefficients.

80. (Previously presented) An apparatus as claimed in claim 79, wherein ~~said~~ the surrounding transform coefficients are previously encoded transform coefficients.

81-91. (Canceled)

92. (Currently Amended) An apparatus as claimed in claim 75, wherein said ~~apparatus codes the remaining bit symbols of the current transform coefficient~~ second encoder means codes the remaining bit symbols by copying the remaining bit symbols.

93. (Previously presented) An apparatus for compressing data, wherein the data comprises a plurality of transform coefficients, and each transform coefficient is expressible in a format comprising a plurality of bit symbols, the apparatus including:

entropy encoder means for entropy encoding one of the bit symbols, not previously entropy coded, of a current transform coefficient based on a context of a number of surrounding bit symbols and on whether or not the most significant bit symbol of the current coefficient has been previously entropy encoded, said context being based on the number of non-zero transform coefficients surrounding the current transform coefficient;

repetition means for repeating the operation of the entropy encoder a predetermined number of times for the current transform coefficient; and

processor means for processing another transform coefficient in accordance with the operations of the entropy encoder means and repetition means.

94. (Canceled)

95. (Previously presented) An apparatus as claimed in claim 93, wherein the apparatus includes quantizing means for quantizing the transform coefficients.

96. (Canceled)

97. (Previously presented) An apparatus as claimed in claim 93, wherein said context of surrounding bit symbols includes information as to whether or not a most significant bit of at least one transform coefficient spatially adjacent, to the current transform coefficient, has been encoded.

98. (Previously presented) An apparatus as claimed in claim 93, wherein the transform coefficients are represented in a bit-plane representation and the surrounding bit symbols are bit symbols in a current bit-plane.

99. (Currently Amended) An apparatus as claimed in claim 75, wherein said ~~entropy~~ first encoder means is an arithmetic coder.

100. (Previously presented) An apparatus as claimed in claim 75, wherein said apparatus further includes a transform means for Discrete Wavelet Transforming data to produce the plurality of transforming coefficients.

101. (Currently Amended) An apparatus for decompressing data, wherein the data once decompressed comprises a plurality of transform coefficients and each transform coefficient is expressible in a format comprising a plurality of bit symbols, the format comprising a number of leading zero bit symbols and remaining bit symbols, the apparatus including:

entropy first decoder means for entropy decoding an encoded number representative of the number of leading zero bit symbols of a current transform coefficient based on a context of a number of transform coefficients or part thereof surrounding the current coefficient, said context being based on the number of non-zero transform coefficients or part thereof surrounding the current transform coefficient;

second decoder means for decoding the remaining bit symbols of the current transform coefficient; and

processor means for processing another transform coefficient in accordance with the operations of the entropy first and second decoder means.

102. (Canceled)

103. (Previously presented) An apparatus as claimed in claim 101, further comprising inverse quantization means for inverse quantizing the transform coefficients.

104. (Previously presented) An apparatus as claimed in claim 101, wherein the representative number equals the number of leading zero bit symbols.

105. (Previously presented) An apparatus as claimed in claim 101, wherein said context is determined from an arrangement of surrounding transform coefficients.

106. (Previously presented) An apparatus as claimed in claim 105, wherein the surrounding transform coefficients are previously decoded transform coefficients.

107. (Canceled)

108. (Currently Amended) An apparatus as claimed in claim 101, wherein ~~apparatus decodes the encoded remaining bit symbols of the current transform coefficient.~~
said second decoder means decodes the remaining bit symbols by copying the remaining bit symbols.

109. (Previously presented) An apparatus for decompressing data, wherein the data once decompressed comprises a plurality of transform coefficients, and each transform coefficient is expressible in a format comprising a plurality of bit symbols, the apparatus including:

entropy decoder means for entropy decoding an encoded bit symbol of a current transform coefficient based on a context of a number of surrounding bit symbols and on whether or not the most significant bit symbol of the current coefficient has been previously entropy decoded, said context being based on the number of non-zero transform coefficients surrounding the current transform coefficient;

repetition means for repeating the operation of the entropy decoder means a redetermined number of times for the current transform coefficient; and

generation means for generating another transform coefficient in accordance with the operation of the entropy decoder means and the repetition means.

110. (Canceled)

111. (Previously presented) An apparatus as claimed in claim 109, wherein the apparatus includes inverse quantization means for inverse quantizing the transform coefficients.

112. (Canceled)

113. (Previously presented) An apparatus as claimed in claim 109, wherein said context of surrounding bit symbols includes information as whether or not a most significant bit of at least one transform coefficient spatially adjacent, to the current transform coefficient, is encoded or decoded.

114. (Previously presented) An apparatus as claimed in claim 109, wherein the transform coefficients are represented in a bit-plane representation and the surrounding bit symbols are bit symbols in a current bit-plane.

115. (Currently Amended) An apparatus as claimed in claim 101, wherein said ~~entropy~~ first decoder means is an arithmetic coder.

116. (Previously presented) An apparatus as claimed in 101, wherein said apparatus further includes an inverse transform means for inverse Discrete Wavelet Transforming the transform coefficients.

117. (Currently Amended) A computer readable medium comprising a computer program for compressing data, wherein the data comprises a plurality of transform coefficients, and each transform coefficient is expressible in a format including a plurality of bit symbols, the format comprising a number of leading zero bit symbols and remaining bit symbols, the computer program comprising:

entropy first encoder means for entropy encoding a number representative of the number of leading zero bit symbols, ~~not previously entropy coded~~, of a current transform coefficient based on a context of a number of transform coefficients or part thereof surrounding the current transform coefficient, said context being based on the number of non-zero transform coefficients or part thereof surrounding the current transform coefficient;

second encoder means for encoding the remaining bit symbols of the current transform coefficient; and

processor means for processing another transform coefficient, not previously ~~entropy~~ coded, in accordance with the operations of the entropy first and second encoder means.

118. (Previously presented) A computer readable medium comprising a computer program for compressing data, wherein the data comprises a plurality of transform coefficients and each transform coefficient is expressible in a format comprising a plurality of bit symbols, the computer program comprising:

entropy encoder means for entropy encoding one of the bit symbols, not previously entropy coded, of a current transform coefficient based on a context of a

number of surrounding bit symbols and on whether or not the most significant bit symbol of the current coefficient has been previously entropy encoded, said context being based on the number of non-zero transform coefficients surrounding the current transform coefficient;

repetition means for repeating the operation of the entropy encoder a predetermined number of times for the current transform coefficient; and

processor means for processing another transform coefficient in accordance with the operations of the entropy encoder means and repetition means.

119. (Currently Amended) A computer readable medium comprising a computer program for decompressing data, wherein the data once decompressed comprises a plurality of transform coefficients and each transform coefficient is expressible in a format comprising a plurality of bit symbols, the format comprising a number of leading zero bit symbols and remaining bit symbols, the computer program comprising:

entropy first decoder means for entropy decoding an encoded number representative of the number of leading zero bit symbols of a current transform coefficient based on a context of a number of transform coefficients or part thereof surrounding the current coefficient, said context being based on the number of non-zero transform coefficients or part thereof surrounding the current transform coefficient;

second decoder means for decoding the remaining bit symbols of the current transform coefficient; and

processor means for processing another transform coefficient in accordance with the operations of the ~~entropy~~ first and second decoder means.

120. (Previously presented) A computer readable medium comprising a computer program for decompressing data, wherein the data once decompressed comprises a plurality of transform coefficients, and each transform coefficient is expressible in a format comprising a plurality of bit symbols, the computer program comprising:

entropy decoder means for entropy decoding an encoded bit symbol of a current transform coefficient based on a context of a number of surrounding bit symbols and on whether the most significant bit symbol of the current coefficient has been previously entropy decoded, said context being based on the number of non-zero transform coefficients surrounding the current transform coefficient;

repetition means for repeating the operation of the entropy decoder means a predetermined number of times for the current transform coefficient; and

generation means for generating another transform coefficient in accordance with the operation of the entropy decoder means and the repetition means.